CANCER VACCINE COMPOSED OF OLIGONUCLEOTIDES CONJUGATED TO APOPTOTIC TUMOR CELLS

SUMMARY

The National Cancer Institute, Laboratory of Experimental Immunology, seeks interested parties to co-develop methods for inducing an immune response to tumors.

REFERENCE NUMBER

E-266-2009

PRODUCT TYPE

- Therapeutics
- Vaccines

KEYWORDS

- CpG ODNs
- Adjuvant Therapy
- Apoptosis

COLLABORATION OPPORTUNITY

This invention is available for licensing and co-development.

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DESCRIPTION OF TECHNOLOGY

Synthetic oligodeoxynucleotides (ODN) containing unmethylated Cytosine-Guanine (CpG) motifs mimic the immunostimulatory activity of bacterial DNA. CpG ODN directly stimulate B cells and plasmacytoid dendritic cells (pDC), promote the production of T Helper 1 cells (Th1) and pro-inflammatory cytokines, and trigger the maturation/activation of professional antigen presenting cells.

NCI Scientists have discovered that conjugating CpG ODNs to apoptotic tumor cells to improve vaccine activity by ensuring that the ODN remains associated with the tumor antigen so that both are internalized by professional antigen presenting cells. The strategy eliminates the need to define specific tumor-associated antigens, substituting instead the entire tumor cell (which in the absence of CpG ODN is poorly immunogenic). The technology could function as an "adjuvant therapy" to eradicate metastasis when used in combination with other modalities, such as surgical removal of the primary tumor.

POTENTIAL COMMERCIAL APPLICATIONS

- Vaccines for the prevention of cancer and other indications
- Use of CpG oligonucleotides for prophylaxis and/or therapy
- Adjuvant Therapy in combination with other modalities (such as surgical removal of the primary tumor).

COMPETITIVE ADVANTAGES

- Accelerates and boosts the induction of tumor-specific immunity
- Eliminates the need to define specific tumor-associated antigens, substituting instead the entire tumor cell

INVENTOR(S)

- Dennis M. Klinman, MD, PhD (NCI)

DEVELOPMENT STAGE

- Pre-clinical (in vivo)

PUBLICATIONS

- Kobayashi N, et al., PMID: 23296706
- Shirota H, and Klinman, D.M., Related publications

PATENT STATUS

- **U.S. Issued:** 8,685,416 (01April2014)

THERAPEUTIC AREA

- Cancer/Neoplasm